volume 43/5 Number

Roundup

SPACE CENTER ROUNDUP

Lyndon B. Johnson Space Center

NASA 395-01402

"Mankind is drawn to the heavens for the same reason we were once drawn into unknown lands and across the open sea. We choose to explore space because doing so improves our lives, and lifts our national spirit."

President George W. Bush
Jan. 14, 2004

NASA ISS09-S-002

The Station gets a *new crew*

Astronaut Mike Fincke (left), Expedition 9 Space Station Science Officer and Flight Engineer, and Cosmonaut Gennady I. Padalka, Commander, pose for their crew portrait while in training at the Gagarin Cosmonaut Training Center in Star City, Russia, prior to their April 18 launch in a Soyuz TMA-4 spacecraft.

May 2004

Houston, Texas

Space Center Roundup

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Joanne Hale Editor
Kendra Phipps Assistant Editor
Marshall Mellard Graphic Designer

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Beak Sends...

A MESSAGE FROM CENTER DIRECTOR LT. GEN. JEFFERSON D. HOWELL JR.

Improving our culture

Since the *Columbia* Accident Investigation Board report was released last summer, much has been said about our culture and its contribution to the environment that allowed the accident to occur. Some of us are in denial that culture had anything to do with the mishap; however, findings by the CAIB as well as local surveys and activities such as Safety and Mission Success Day have all resulted in a realization that our organization, our Center, our team has inherent flaws that stymie healthy communication at all levels. In too many cases, employees feel that they are unable to speak honestly or present a different or opposing view because of fear of retribution.

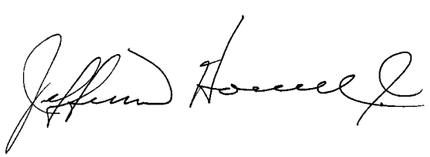
Something has to be done about this. The demands of human spaceflight with its inherent risks require that we, as a team, work at peak efficiency and at the highest level of professional excellence. This cannot be done in a workplace that does not allow open communication and trust at all levels. Be assured that our Administrator is taking proactive measures to fix this problem. He has made this a priority issue for the NASA senior leadership team to address.

One of our first actions has been to hire BST, a company of experts in identifying organizational weaknesses and assisting in improving leadership skills at all levels in the workplace. They will be working throughout NASA and will be joining us at Johnson Space Center in the near future to help us enhance our teamwork. Let us welcome them and use their expertise to best effect.

Our JSC Senior Staff has also partnered with contractor senior management to find ways of improving trust and better communications between civil servants and contractors. We have already had several productive meetings and have built a plan of action to help improve our effectiveness as a leadership team.

Improving culture isn't easy! However what I have just described to you are some initial first steps in the right direction. I hope it is clear to you that we realize leadership must improve before we can expect the organization to improve. You will be the best judge on whether or not that happens. I'm looking forward to getting your feedback as we go forward. Keep the faith and remember:

It's great to be alive and in Houston!



Stellar AWARDS ★ 2004

Johnson Space Center employees and contractors achieve "Stellar Awards"

Neil Armstrong receives the National Space Trophy

by Debbie Nguyen

Those who go into the space industry go in reaching for the stars – recently a select few were able to obtain them.

Each year the nonprofit organization Rotary National Award for Space Achievement (RNASA) receives nominations from NASA, the military and industry leaders in human and crewless spaceflight companies to honor those who have made eminent contributions in the field of space exploration with the Stellar Award.

Previous winners of this prestigious honor include International Space Station and Shuttle Flight Director John Curry, Space Station Program Manager Bill Gerstenmaier, the NASA KC-135 Reduced Gravity Student Flight Opportunity Program and the JPL Mars Pathfinder Team.

Among the 600 people who attended this year's black-tie event were Johnson Space Center Director Lt. Gen. Jefferson D. Howell Jr., former Astronaut Neil Armstrong and NASA's first flight director Christopher Kraft Jr. Miles O'Brien, CNN space correspondent, entertained the crowd as the Master of Ceremonies. Astronauts Sandra Magnus, Ph.D., and James F. Reilly II, Ph.D., presented the awards.

This year's recipient of the RNASA National Space Trophy was Astronaut emeritus Neil Armstrong, the first human to walk on the Moon. RNASA's Board of Directors awards the National Space Trophy annually to an individual who has made a substantial impact in the aerospace industry. Past honorees include Astronaut Capt. John Young, former Space Shuttle Program Manager Tommy Holloway, the President's Commission on Moon, Mars and Beyond Chairman Edward C. "Pete" Aldridge Jr. and former President George H.W. Bush.

Kraft, the 1999 National Space Trophy recipient and former Manned Spacecraft Center Director, presented the award to Armstrong "for his contributions to the U.S. space program as the first explorer to land a manned spacecraft on the Moon and the first human to step on the surface of the Moon."

During his speech, Armstrong, who rarely makes public appearances, voiced his support and urged unity for the Vision for Space Exploration.

"The success of the endeavor will also be dependent on the degree to which the aerospace community, all of us – government, industry, and academia – can coalesce their forces and converge on a common goal," Armstrong said. "Our economy can certainly afford an effort of this magnitude, but the public must believe the benefits to society deserve the investment. We know the advancement of knowledge and the rate of progress is proportional to the risk encountered…but to limit the program in the name of eliminating the risk is no virtue."

Awards and nominations are organized into four categories based on age and length of service. Beginning on page 4 are the winners from JSC.

EARLY-CAREER: UP TO AGE 33

Elizabeth Bauer of JSC

Bauer, who graduated in mechanical engineering from Texas A&M, started her first cooperative education student tour at JSC in 1990. Her role as engineering project manager has been instrumental in the development of the International Space Station Human Research Facility, which celebrated its third anniversary on March 8.

Bauer said, "I'm in front of people who are just like me who are trying to do their job day in and day out. But at the same time, I'm also in front of these significant historical people. One of the reasons why I wanted to go was to 'share air' with Neil Armstrong and Chris Kraft."

Natalia Robarge of TechTrans International

Robarge's leadership and implementation of operational concepts and training programs for Mission Control Center interpreters has assured international mission safety and success.

Beth Williams, President of TechTrans International, said, "If any company had a Natasha (Natalia), they'd be the number one company in the world. She is the most amazing young woman…she can do anything!"

MID-CAREER: AGE 34-50

Paul S. Hill of JSC

For his leadership and technical expertise of the Early Sighting Assessment Team, and leadership during the early stages of the on-orbit maintenance of the Orbiter Thermal Protection System.

Paul F. Dye, Lead Flight Director in the JSC Space Shuttle Operations Division, said, "Paul is exceptionally sharp, and an outstanding leader. Not only does he see the big picture – he is very good at the detailed level."

LATE-CAREER: OVER AGE 50

Royce G. Forman of JSC

In the 45 years that Forman has been at JSC, he has played a significant role in developing the NASGRO Fracture Mechanics software package, which is now internationally accepted as the standard code for fracture control analysis of space hardware.

José M. Hernández, Branch Chief of the Materials and Processes Branch at JSC, said, "Having Royce in the Materials and Processes Branch has certainly been a pleasure. Especially when one realizes he's the same Forman my college fracture mechanics textbooks referred to when they talked about the Forman and Mettu crack growth rate equation!"

LATE-CAREER: OVER AGE 50 *continued*

Larue J. Jones of United Space Alliance

For his superb leadership and thorough planning for the Shuttle Avionics Integration Laboratory (SAIL) at JSC, including coordinating the implementation and testing of Space Shuttle upgrades in SAIL, which will provide a safer and more reliable Shuttle for future spaceflights.

Jones said, "I was very, very, surprised when I heard my name called for an award in the Late Career category. I guess I was in a state of shock for several seconds until a couple of people at the table I was sitting at brought me back to reality by reminding me that I needed to go to the stage to receive the award."

TEAM AWARD

Chuck Campbell, accepting on behalf of the team

STS-107 Aerothermodynamics Investigation Team

The combined efforts of many talented and capable people across the nation provided extremely technically complex and highly innovative reconstruction of STS-107, a critical contribution to the findings and recommendations of the *Columbia* Accident Investigation Board.

Team members include: Stan Bouslog, Chuck Campbell, Jose Caram, Steve Fitzgerald, Randy Lillard, Chris Madsen, all from JSC, and others from Ames Research Center, Langley Research Center, Marshall Space Flight Center and the Boeing Company.

SPACE COMMUNICATOR AWARD

Bob Jacobs, accepting on behalf of the team

NASA-Contractor Communications Team

For demonstrating "integrity, excellence in performance, and commitment to the importance of human spaceflight…by meeting the most extreme challenges with courage, fortitude, dedication and compassion. Each individual's efforts presented a human face to the public that represented the Agency long after the cameras left."

This is a special award given to a professional communicator who has made an important contribution to the public's understanding of and appreciation for the accomplishments of the American space program. This is the first team recipient.

Congratulations to everyone on their achievements.

"She is one of the most dedicated and hard-working people I've ever been around. This dedication is fueled by her intense commitment to the human spaceflight dream and to the vision of human exploration of space."

Greg Hayes, Director of External Relations

Sue Garman

After more than 30 years, Susan H. Garman retired from the space program in April. Garman began her career in 1967 with the Federal Electric Corporation, and from 1983 to 1987, she served as the Director of Administration for Hernandez Engineering, Inc. In 1987, she joined JSC in the Business Administration Directorate. Since then, Garman has served in numerous key Center and Agency positions, including temporary assignments on the NASA Administrator's staff both as the Executive Assistant to the Administrator and as the Deputy Chief of Staff; in various Center procurement positions; and since January 1994, in various positions in the Office of the Director at JSC – most recently as the Center's Associate Director.

Below, she shares her thoughts about her Johnson Space Center career.

What have you enjoyed about your career at JSC?

I don't know anyone who could have had more fun than I've had working for NASA! I started working at JSC as a contractor in 1967 for the old Mission Planning and Analysis Division and met my husband, Jack, while working a simulator for Apollo 8 in Mission Control. Through the years, I've worked for some great, interesting people – Dee Lee, Dan Goldin, Darlene Druyun, George Abbey, Courtney Stadd, Beak Howell – and have been fortunate to have always been surrounded by dedicated people who are committed to achieving NASA's incredible mission.

What will you miss about working at JSC?

The people are, undoubtedly, what I'll miss most when leaving JSC. My only regret is that I cannot begin to express my thanks and appreciation for the support and friendship I've received through the years. Wherever you are, I'll be cheering from the sidelines and hoping that our paths cross again.

What are your plans for the future?

My first order of business is to welcome a granddaughter into the world in July! Beyond that, only time will tell.

"I will miss him both personally and professionally. All of us wish Randy and his family the best in his retirement."

Lt. Gen. Jefferson D. Howell Jr., Center Director

Randy Stone

Brock "Randy" Stone recently retired from NASA following a remarkable 36-year career that included work on the Apollo lunar missions, Skylab, the Space Shuttle and the International Space Station.

A native Texan, Stone began his career with NASA in 1967 when Johnson Space Center was known as the Manned Spacecraft Center. He started out working as a systems engineer supporting landing and recovery of the Apollo spacecraft.

He was a flight controller and flight director in the Mission Control Center for almost 30 years and was named Chief of the Flight Director Office in 1989. From 1992 to 2001, he served as Director of Mission Operations, where he was responsible for oversight of Space Station and Space Shuttle missions before assuming the role of Associate Director, Management (acting). He was named Deputy Director in November 2001. Below, Stone shares his thoughts about his JSC career.

What NASA experiences stand out the most?

My participation in the recovering of the Apollo astronauts on Apollo 7, 8, 9, 11, 12 and 13.

The biggest thrills were handling the Apollo 11 Moon rock box when it was flown off the *USS Hornet*, being in the MQF with Pete Conrad, Al Bean, and Dick Gordon and lastly seeing the parachute open on Apollo 13.

Getting ready to fly STS-1, having to say we were "no go for launch" on the first real attempt and then feeling the unbelievable relief and elation when John Young and Bob Crippen called "wheel stop" after landing.

Being selected as a Flight Director in 1981, Director of MOD in 1992 and being asked to be Deputy Center Director. Those were jobs that had been held by my heroes. To this day I have to pinch myself to know that it was really me who had the honor of following in the footsteps of such great people.

What are you going to miss?

I am going to miss the daily interaction with so many extremely talented people all working together to solve difficult problems.

What are your plans for the future?

Right now my plan is to spend time with my family, build a great home workshop, fly model airplanes and fish. If I get bored I may poke around and see if I can still contribute to one the world's greatest endeavors – human spaceflight.

Get a Taste of the Future!

by Catherine E. Borsché

Imagine being stuck in a house for months, not able to venture out to go to the grocery store whenever a particular food craving hits. All that you have to survive on is already stowed in the pantry. The items in this pantry have been predetermined long ahead of time, and if your taste buds happen to change, you are simply out of luck.

Astronauts flying aboard the International Space Station face that dilemma each time they leave Earth, although the Space Food Systems Laboratory at Johnson Space Center does all it can to ensure the astronauts are happy when it comes to their meals.

Menu planning for a Space Station crew begins when the crewmembers visit the Space Food Systems Laboratory. They essentially try every food item available and give each item a "score." The crew goes to Russia and repeats the process, this time with the Russian food system. Once all the food samples are scored, sample menus are created by the United States and Russia. Those menus are then merged together, so the end result will usually have two meals per day coming from the Russian food system, and the two remaining meals from the United States food system. The astronauts will visit the Space Food Systems Laboratory again to try out these sample menus and make sure that they are completely satisfied with their choices.

However, in space, the menus are seldom used.

"We use the menu as a planning tool," said Vickie Kloeris, JSC Manager of Space Food Systems. "We do provide a copy of the menu to them. We put it in a container with the food, but they don't necessarily eat it in the order that we've planned it."

Food choice is extremely important to astronauts, and the longer the duration of the flight, the more significant those choices become. The meals are stowed pantry-style onboard Space Station, so crewmembers can eat food items in any order they wish. For instance, if crewmembers want to have chicken three nights in a row, they can do that.

"Being on Space Station, so much of what is going on is beyond their control," Kloeris said. "And so food is just a comfort thing that they would like to feel they have some input on or some control over. It's just a big psychological thing – I don't know if we've flown anyone to Station that has not been concerned about their food."

Emilce (Emmy) Vest, Food Services Director and Executive Chef for JSC, agrees that comfort food is of the utmost importance, especially when astronauts are in space.

"In situations where there is little outside stimulation, and we're somewhat lonely, food becomes more of a focus because it gives us sensual and chemical stimulation," Vest said. "We also crave the social payoff in 'breaking bread' with our companions."

The Space Food Systems Laboratory tries to vary the menus a bit by allowing the crew to take bonus containers into space, in which they can request special, off-the-menu food items. These items usually include commercially available candy bars, cookies or crackers – anything with a long shelf life. Yet even with the special goodies sent to the Space Station ahead of time, astronauts inevitably return to Earth wishing that they could have had more food variety in space.

More variety – especially fresh food items – often shows up when a Russian Progress vehicle docks to the Space Station. The Progress usually brings fresh items such as apples, oranges, grapefruits and other fruit items. The Russians will pack those types of fresh food items as well, but they also include interesting foods that Americans do not typically eat.

"The Russians will fly things like raw onion and raw garlic, because that's more a part of their culture than part of our culture," Kloeris said. "But it's interesting because some of our American crewmembers have said that even though it didn't sound all that great ahead of time, it actually was nice to have it because it was something totally different."

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NASA/DeHoyos JSC2003653871

Vickie Kloeris, JSC Manager of Space Food Systems, displays some space food items.

Choosing food items for Space Station crewmembers can also pose a challenge due to the fact that most crewmembers say that their tastes change while in orbit. While Kloeris notes that there is no real scientific data to support that theory, there is plenty of anecdotal data and personal accounts to support its likelihood. For instance, it is well known that astronauts seem to like spicier foods and tart beverages such as lemonade while in orbit, when on the ground those items are not as appreciated.

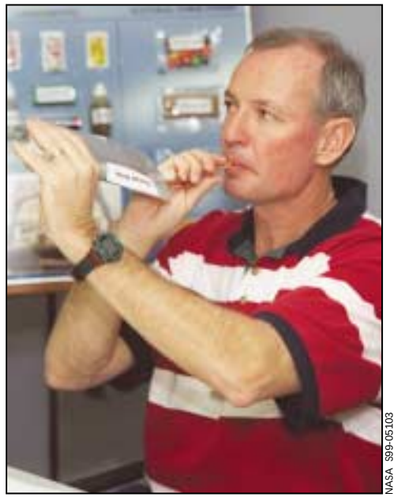
Astronaut Peggy Whitson's personal account of food while in space echoes that thought. "When STS-112 visited, I told the commander that I wasn't opening the hatch unless they had salsa," said Whitson, the Expedition 5 Space Station Science Officer. "My favorite space food was peanut butter. I'm not a big fan of it on the ground, but couldn't get enough of it in space."

Food becomes a priority when it is one of the few connections an astronaut has to home. Although the Space Food Systems Laboratory faces many challenges such as keeping the food varied, tasty and fresh for the astronauts, they are learning more and more after each Expedition crew about how to keep long-duration flight astronauts happy with their menus. And although food seems so basic to the ordinary person, it is much more important when you do not have ready access to a grocery store.

"Taste is one of the first senses with which we explore the world," Vest said. "There are a lot of chemical reasons for food to be a comfort mechanism. However, our primitive brain is hardwired to equate food with 'home' and safety. When we're hungry, we're all 2 years old."

NASA S110E5035

Astronaut Jerry L. Ross, STS-110 Mission Specialist floats on the middeck of the Space Shuttle Atlantis *along with a tray of food.*



NASA S99-05103

Astronaut Brian Duffy samples a beverage during a crew food evaluation session in the food laboratory at JSC.

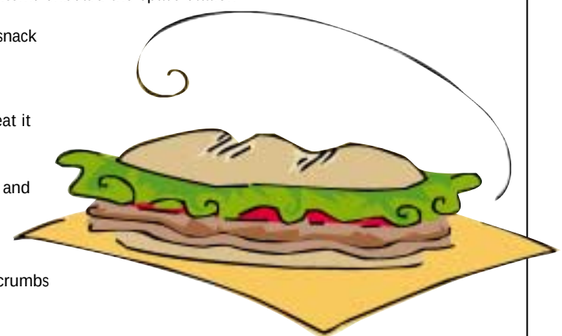
NASA ISS005E16295

Expedition 5 Space Station Science Officer Peggy Whitson and Flight Engineer Sergei Treschev share a meal in the Zvezda Service Module on the Space Station.

Juicy Tidbits

Did you know that...

- Tofu is a vegetarian food item available to astronauts
- The same retort pouch technology we use for our space food system was developed by the military for the MRE (Meals Ready to Eat) Program
- The Food Lab began making custom food products in 1998
- Onboard the Space Station, there is no chilled water – only ambient, warm or hot
- You can have a meal replacement drink in space that is either vanilla, strawberry or chocolate
- The only authentic juice the Space Food Systems Laboratory offers is spray-dried orange juice
- The Space Food Systems Laboratory only uses non-fat dried milk because fat can potentially go bad over time
- The astronauts can eat warm desserts such as cobbler and bread pudding in space
- Freeze-dried items have had enough water removed so that no bacteria can grow
- Russia and the United States each provide half of the food items onboard the Space Station
- An astronaut's daily food intake consists of three meals and a snack
- The Station crew operates on a 10-day menu cycle
- Crewmembers can carry on a warm sandwich during launch and eat it when they first reach orbit
- Many of the food items used for space are commercially available and on grocery store shelves
- Flour tortillas are considered the favorite bread item of astronauts because they do not give off crumbs



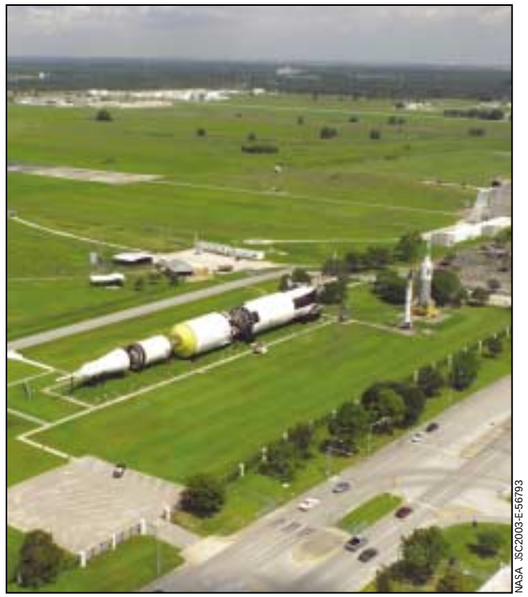
This is a high-angle view at Launch Complex 39, Kennedy Space Center, showing the Apollo 12 (Spacecraft 108/Lunar Module 6/Saturn 507) space vehicle leaving the Vehicle Assembly Building on the way to Pad A. The Saturn V stack and its mobile launch tower are atop a huge crawler-transporter.

NASA S69-51308

Smithsonian WORKS TO SAVE JSC'S Saturn V

JOHNSON SPACE CENTER'S LANDMARK ROCKET IS GETTING AN OVERDUE FACE-LIFT

by John Ira Petty



NASA JSC2003-E-56793

This aerial view features Johnson Space Center's Rocket Park, near NASA Parkway. An actual Apollo Saturn V launch vehicle (center frame), which was originally built to start a crew of astronauts on its way to the Moon, has been on permanent exhibit since 1977, along with models of the Little Joe and Mercury-Redstone rockets. The Western Heritage Pavilion is visible in the background.

The Saturn V on display at JSC, intended for Apollo 18, never got off the ground. It has long outlived its sisters that did take humans to the Moon between 1969 and 1972. That extended life, however, has brought some uninvited guests to the rocket such as mold and small animals.

Some external surfaces of the Saturn V have broken down and corrosion has affected internal and external structures. Excessive moisture and poor drainage throughout the rocket have led to mold and plant growth. Small animals have found shelter inside the irreplaceable landmark and are responsible for acidic debris and damage.

Now the Smithsonian Institution's National Air and Space Museum has begun preservation efforts on the 363-foot launch vehicle that should add many more years to the rocket's life.

The Saturn V, from the command module's escape tower to the nozzles of the five first-stage engines, has been on display outdoors at JSC since 1977. It formally became part of the Smithsonian collection in 1978 but remained at JSC.

A grant from the Save America's Treasures program of the National Park Service and the National Trust for Historic Preservation could provide $1.25 million for the project. More than half the required dollar-for-dollar matching funds have been raised from the private sector. Allan Needell, Apollo curator at the National Air and Space Museum, hopes more donations will allow the Smithsonian to make full use of the Save America's Treasures grant.

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The Smithsonian has contracted with Conservation Solutions Inc. (CSI) of Washington, D.C., for initial steps of preservation: thoroughly cleaning all rocket stages; removing fluids from tanks and lines; proposing and testing state-of-the art techniques for corrosion removal; surface preparation and repainting; and starting work to repair damaged components. The work began in March.

CSI also will provide a temporary temperature- and humidity-controlled building to protect the Saturn V during the preservation work and until a permanent indoor display site can be provided. The goal is to save the Saturn V and to restore it to its original appearance.

Smithsonian curators, conservators, advisors and NASA have been working to create a comprehensive plan to preserve and protect the Saturn V at JSC for future generations. They have raised enough money to finish the plan's first phase. If the remaining matching funds can be raised, the job is scheduled for completion in December 2004.

The Saturn V was first used to carry humans during the Apollo 8 mission, which orbited the Moon in 1968. The rockets were used for all lunar landing missions and to carry Skylab into orbit in 1973.

Of the three surviving Saturn V launch vehicles, only the spacecraft at JSC is made entirely of rocket stages intended for flight. Three planned Moon flights, Apollo 18, 19 and 20, were canceled.

NASA JSC2002-01598

This point of view is that of the tram system that transports visitors from Space Center Houston onto the JSC site.

NASA JSC2003-E-46913

This close-up view features a single F-1 rocket engine (left), the first stage and the five F-1 engines on an actual Apollo Saturn V launch vehicle (partially out of frame), which was originally built to start a crew of astronauts on its way to the Moon. These have been on permanent exhibit since 1977 in Rocket Park.

NASA JSC2003-E-46915

This view features the Western Heritage Pavilion located near Rocket Park.

"JSC and its contractor partners are working together to enhance our culture and create an environment that fosters better communications and mutual respect for all employees. The JSC Team, which consists of all of us – contractor and civil servant alike – will continue to build the relationships that support our legacy of technical excellence, teamwork and pride. It all starts with promoting better leadership and that's where we will attack first. We're all committed to making our organizations stronger through a united effort. Working together, we can bring about change!"

Lt. Gen. Jefferson D. Howell Jr.
Center Director

JSC Team

JSC Senior Staff
4 W Solutions
Aerospace Corporation
Al-Razaq Computing Services
Anadarko Industries
ARES Corporation
Barrios Technology
Bastion Technologies
Blackhawk Management Corporation
Best Staff Services
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Diamond Group
DDMS Technologies
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DynCorp
ePro Enterprise Professionals
EASI
Futron
GB Tech
GeoControl Systems
GHG Corporation
Hamilton Sundstrand
Hernandez Engineering
Honeywell
ILC Dover
InDyne
Kelsey-Seybold Clinic
Lockheed-Martin Information Technology
Lockheed-Martin MSOC
Lockheed-Martin SEAT
MRI Technologies
Muniz Engineering
Oceaneering
Raytheon
Rothe Joint Venture
S & K Technologies
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Spacehab
Synergos Solutions
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Tietronix Software
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United Space Alliance
W de Y Associates
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